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EXAMINER				
BOYER, RANDY				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

info@lmiplaw.com

### Office Action Summary

**Application No.**

10/516,672

**Applicant(s)**

SCHULZE-TRAUTMANN ET AL.

**Examiner**

RANDY BOYER

**Art Unit**

1797

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 25-29, 31, 32, 36-41, 43-46 and 51-54 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 25-29, 31, 32, 36-41, 43-46 and 51-54 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office Action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1 April 2010 has been entered.

### ***Response to Amendment***

2. Examiner acknowledges Applicant's response filed 1 April 2010 containing amendments to the claims, remarks, and declaration of Mr. Frank Bauer.
3. Claims 25-29, 31, 32, 36-41, 43-46, and 51-54 are pending.
4. The previous rejections of claims 25-29, 31, 32, 36-41, 43-46, and 51-54 under 35 U.S.C. 102(e) and 35 U.S.C. 103(a) are maintained.
5. New grounds for rejection of claims 25 and 31, necessitated by Applicant's amendments to the claims, are entered under 35 U.S.C. 112, first paragraph. The rejections follow.

***Declaration Under 37 CFR 1.132***

6. Examiner acknowledges the declaration of Mr. Frank Bauer filed with Applicant's response of 1 April 2010.
7. The Bauer declaration argues the nonobviousness of Applicant's claimed product and process mainly by comparison to results purportedly obtained by use of "a prior art catalyst." After careful review, Examiner finds the Bauer declaration unconvincing in at least two respects.

First, Bauer describes the "prior art catalyst" used as the basis for comparison against that of Applicant's claims as "Co-Mo/Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub>" (see Bauer declaration, Fig. 3 and Fig. 4) – i.e. a catalyst composition not having any zeolitic component. However, Bertaux (which provides a preferred catalyst for the process of Hoek) explicitly discloses *zeolite beta* as suitable for the hydroisomerization reaction (see Bertaux, column 4, lines 27-36). Likewise, Wittenbrink (used as the basis for the second grounds of rejection) discloses the use of zeolites for the hydroisomerization of paraffinic feedstocks (see Wittenbrink, page 8). Specifically, Wittenbrink provides that "[t]he support for the metals can be any refractory oxide or zeolite or mixtures thereof" (see Wittenbrink, page 8) (emphasis added). Thus, Wittenbrink does in fact contemplate use of a *mixed* zeolite/oxide catalyst the same as specified in Applicant's claims. An applicant relying on comparative tests to rebut a finding of obviousness must compare the claimed invention to the closest prior art. *In re DeBlawe*, 736 F.2d 699, 705 (Fed. Cir. 1984)). Because (1) the closest prior art (Bertaux and Wittenbrink) relied upon for teaching of the catalyst limitation of Applicant's claims recites use of a *zeolitic* catalyst; and (2) the

"prior art catalyst" referred to in Bauer does *not* contain any zeolitic component, the proffered evidence fails to rebut the *prima facie* case of obviousness made against Applicant's claims.

Second, Bauer makes that rather bold statement that

*Given the surprising and unexpected results obtained by the application of bifunctional zeolite catalysts where the zeolite crystals do not contain any hydrogenation metal component and the hydrogenation/dehydrogenation sites are exclusively attached to the catalyst binder, the ordinary artisan would not have been able to predict or select these specific parameters, to produce the desired microcrystalline paraffin, having the claimed properties, because the prior art preparation of bifunctional zeolite catalysts consists of impregnation or ion exchange of the hydrogenation component onto the acidic support or zeolite (e.g., similar to that disclosed by Carati; column 4) (see Bauer declaration, paragraph 19) (emphases added).*

This portion of the Bauer declaration seemingly fails to recognize the fact that the catalyst used in the claimed process to make the claimed product is itself formed via impregnation (see Applicant's specification, page 11, lines 29-38; and page 12, lines 1-17). Because neither Bauer nor Applicant's specification sufficiently explains how the prior art impregnation process is not able to keep "the hydrogenation/dehydrogenation sites [ ] exclusively attached to the catalyst binder [and not the zeolite]" whereas the catalyst of Applicant's claims (also formed via impregnation) somehow is able to achieve this "surprising" result, then Examiner does not recognize the catalyst composition specified in Applicant's claims to be anything different than what Bauer admits already exists in the prior art.

For at least the reasons explained above, the Bauer declaration is not evidence sufficient to overcome the rejections of Applicant's claims.

***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 25 and 31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

10. With respect to claims 25 and 31, both claims have been amended to recite "wherein the zeolite does not contain any of the one or more transition group 8 metals." For the reasons indicated below, Examiner finds such limitation is not enabled by Applicant's specification as originally filed.

First, Applicant's specification provides for formation of the mixed zeolite/oxide catalyst via impregnation. Specifically, the specification explains that the catalyst to be used as part of the claimed process to make the claimed product is formed by: (1) mixing together zeolite powder and powdered  $\gamma$ -aluminum oxide (see Applicant's specification, page 10, lines 28-34); (2) combining the powdered mixture with an aqueous dilute acid to form a shapeable, plasticized mass (see Applicant's

specification, page 10, lines 33-38); (3) extruding the shapeable, plasticized mass through nozzles to form shaped extrudates (see Applicant's specification, page 11, lines 6-9); (4) drying and calcining the shaped extrudates at elevated temperatures to drive off any water, nitrate ions, ammonium ions, and organic constituents (see Applicant's specification, page 11, lines 9-17); and (5) impregnating the calcined extrudates with a solution containing the compound of the metal or metals of transition group 8 of the periodic table (see Applicant's specification, page 11, lines 29-31). By following such procedure, the specification claims that "[t]he noble metals are [ ] present as finely dispersed metalloxy, . . . while the zeolite crystals themselves do not contain any hydrogenation metal component" (see Applicant's specification, page 12, lines 14-17). However, the specification does not provide any further explanation or guidance as to how exactly a calcined catalyst extrudate composed of a composite mixture of zeolite and oxide is somehow able to attach the group 8 metals only at the oxide sites while at the same time the zeolite constituent (exposed to the same impregnating solution) somehow "do[es] not contain any hydrogenation component."

Second, Bauer admits that it is already known in the art to form bifunctional zeolite catalysts via impregnation (see Bauer declaration, paragraph 19).

Third, Bauer argues that the catalyst used in the claimed process to make the claimed product provides "surprising and unexpected results" and that "the ordinary artisan would not have been able to predict or select these specific parameters, to produce the desired microcrystalline paraffin, having the claimed properties, because the prior art preparation of bifunctional zeolite catalysts consists of the impregnation . . .

of the hydrogenation component onto the . . . zeolite" (see Bauer declaration, paragraph 19) (emphasis added).

Thus, it is clear from the foregoing that if: (1) both the prior art catalysts and that used in the claimed process to produce the claimed product are catalysts formed via impregnation of the hydrogenation metals onto the catalyst; and (2) the catalyst used in the claimed process to produce the claimed product truly does provide "surprising and unexpected results," then there must necessarily be some feature of the catalyst formation process that is different and of critical importance to producing the claimed product, especially in light of the somewhat incredible claim that the hydrogenation metals of the catalyst used in the claimed process to produce the claimed product are *exclusively* attached to the *oxide* constituent of the catalyst despite the fact that the *zeolite* constituent exists in a *composite* mixture with the oxide constituent and the composite catalyst material is exposed to the *same* impregnating solution under the *same* impregnating conditions. A close reading of Applicant's specification does not provide clear guidance as to how this is possible and the person having ordinary skill in the art would not readily recognize the means by which this feature would or could be achieved, especially as evidenced by the statements made in the Bauer declaration.

For all the foregoing reasons, the added limitation of Applicant's amended claims 25 and 31 are found to be not enabled when read in light of Applicant's specification.



***Claim Rejections - 35 USC § 102 / 35 USC § 103***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

14. Claims 25-29, 31, 32, 36-41, 43-46, and 51-54 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious

over Hoek (US 2004/0199040). Alternatively, claims 25-29, 31, 32, 36-41, 43-46, and 51-54 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hoek (US 2004/0199040), as evidenced by Eilers (EP 668342 A1) and/or Bertaux (EP 776959 A2).

15. With respect to claim 25, Hoek discloses a microcrystalline paraffin as solid product, prepared by catalytic hydroisomerization of FT paraffins (see Hoek, Abstract; and page 2, paragraph 15).

Hoek does not explicitly disclose wherein the FT paraffins have a carbon chain length distribution in the range from 20 to 105 at temperatures above 200°C; or wherein the catalytic hydroisomerization occurs in the presence of a catalyst comprising  $\beta$ -zeolite and gamma aluminum oxide.

However, Hoek discloses wherein the feed material for production of the microcrystalline paraffins is obtained from a FT synthesis process, e.g. that described by Eilers and Bertaux (see Hoek, page 2, paragraph 15). In this regard, Examiner notes that the FT synthesis processes disclosed by both Eilers and Bertaux produce paraffins having a carbon chain length distribution greater than 20 (see Eilers, page 6, lines 12-23) (see Bertaux, column 3, lines 15-29). In addition, Hoek that a preferred hydroisomerization catalyst is one such as that disclosed in EP-A-776959 [Bertaux] (see Hoek, page 1, paragraph 13). In this regard, Examiner notes that Bertaux discloses a  $\beta$ -zeolite hydroconversion catalyst (see Bertaux, column 4, lines 27-36).

Therefore, Hoek (by reference to both Eilers and Bertaux as sources of acceptable feed material; and by reference to Bertaux as disclosure of a preferred

catalyst) inherently discloses wherein the FT paraffin feed material has a carbon chain length distribution of greater than 20, and wherein the catalyst is a  $\beta$ -zeolite. Finally, both Hoek and Bertaux disclose the use of alumina as a known constituent of hydroisomerization catalysts (see Hoek, page 1, paragraph 13) (see Bertaux, column 3, lines 43-50). Moreover, Bertaux discloses wherein such hydroisomerization catalyst may comprise a hydrogenation component (e.g., platinum, palladium) supported on a refractory oxide carrier comprising mixtures of alumina with zeolite (see Bertaux, column 3, lines 43-50).

In view of the foregoing, Examiner finds Applicant's claim 25 unpatentable over the disclosure of Hoek in view of what is already known in the art, as evidenced by Eilers and Bertaux.

Finally, with respect to the newly added limitation "wherein the zeolite does not contain any of the one or more transition group 8 metals," there is lack of enablement for such limitation in Applicant's specification (see discussion *supra* at paragraph 10).

16. With respect to claim 26, Hoek discloses wherein the paraffin has a needle penetration value of less than 10 mm (see Hoek, Table 1).

17. With respect to claims 27 and 28, Hoek discloses wherein the paraffin is substantially free of aromatics, heterocyclic compounds, and naphthenes (see Hoek, page 2, paragraph 19).

18. With respect to claim 29, Hoek discloses wherein the paraffin has a proportion by weight of isoalkanes greater than that of normal alkanes in the paraffins (see Hoek, page 2, paragraph 19; and Table 1).

19. With respect to claim 31, Hoek discloses a process for preparing a microcrystalline paraffin by catalytic hydroisomerization comprising the steps of: (a) use of FT paraffins as starting material, having greater than 20 carbon atoms (see discussion *supra* at paragraph 15); (b) use of a  $\beta$ -zeolite catalyst (see Hoek, page 1, paragraphs 6-8) (see discussion *supra* at paragraph 15); (c) use of a process temperature above 200°C (see Hoek, page 1, paragraph 7); and (d) action of pressure in the presence of hydrogen (see Hoek, page 1, paragraph 7), e.g. at temperatures in the range of 230°C to 270°C and pressures in the range of 3 MPa to 8 MPa (see Hoek, page 1, paragraph 7).

With respect to the newly added limitation “wherein the zeolite does not contain any of the one or more transition group 8 metals,” there is lack of enablement for such limitation in Applicant’s specification (see discussion *supra* at paragraph 10).

20. With respect to claims 32 and 41, Hoek discloses the use of *any* suitable amorphous silica-alumina carrier (e.g. a zeolite) with a majority of pores having diameters in the mesoporous range as a support material for a metal of transition group 8 (see Hoek, page 1, paragraphs 8-10).

21. With respect to claims 36 and 37, Hoek discloses wherein the process may be conducted at a temperature between 200C and 400C and a pressure between 10 bar and 100 bar (see Hoek, page 1, paragraph 7).

22. With respect to claims 38 and 39, Hoek discloses wherein the feed ratio of hydrogen to FT paraffin may be in the range of 250:1 to 600:1 m<sup>3</sup>/m<sup>3</sup> (see Hoek, page 1, paragraph 7).

23. With respect to claims 40 and 51, Hoek is not specifically limited with respect to the amount of catalyst to be used (see Hoek, entire disclosure).
24. With respect to claims 43, 44, and 52, Hoek discloses wherein the catalyst may be platinum with a metals contents of between 0.1 wt% and 2.0 wt% (see Hoek, page 1, paragraph 8).
25. With respect to claims 45, 46, and 53, Hoek discloses wherein the FT paraffin used has a solidification point of 60°C or greater (see Hoek, page 1, paragraph 14) and wherein short-chain constituents may be removed prior to the step of hydroisomerization (see Hoek, page 2, paragraph 17; and Example 1).
26. With respect to claim 54, Hoek discloses wherein the process optionally comprises a deoiling step (see Hoek, page 2, paragraph 18).

***Claim Rejections - 35 USC § 103***

27. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

28. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

29. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

30. Claims 25-29, 31, 32, 36-41, 43-46, and 51-54 are rejected under 35 U.S.C. 103(a) as obvious over Wittenbrink (WO 01/74969 A2) in view of either (1) Hoek (US 2004/0199040) and Bertaux (EP 776959 A2) or (2) Carati (US 5,981,419).

31. With respect to claim 25, Wittenbrink discloses a microcrystalline paraffin as solid product, prepared by catalytic hydroisomerization of FT paraffins having a carbon chain length distribution greater than 20 (see Wittenbrink, Abstract; and page 5, first paragraph).

Wittenbrink does not explicitly disclose wherein the hydroisomerization occurs in the presence of a catalyst comprising  $\beta$ -zeolite and aluminum oxide.

However, Wittenbrink discloses wherein the hydroisomerization catalyst support may be any zeolite (see Wittenbrink, page 8) ("The support for the metals can be any refractory oxide or zeolite or mixtures thereof.") (emphasis added). In this regard, it is

known in the art to use a zeolite/alumina catalyst for hydroisomerization of paraffinic feedstocks for the production of microcrystalline paraffins, as evidenced by Hoek and Bertaux (see discussion *supra* at paragraph 15). Likewise, Carati discloses a beta-zeolite based catalyst comprising aluminum oxide for the selective hydroisomerization of n-paraffins into isoparaffins and which has minimum activity towards cracking of the feedstock (see Carati, Abstract; column 1, lines 15-17 and 25-29; and column 8, Table 1).

Therefore, the person having ordinary skill in the art would have been motivated to modify the process of Wittenbrink to provide for use of a beta-zeolite/alumina catalyst (e.g., similar to that disclosed by Carati) in order to minimize the amount of hydrocracking and maximize the yield of wax isoparaffins produced.

Moreover, the person having ordinary skill in the art would have had a reasonable expectation of success in modifying the process of Wittenbrink as described above because: (1) Wittenbrink discloses that the catalyst used may be any suitable mixture of zeolite and refractory oxide; and (2) beta-zeolite/alumina catalysts are known in the art for the hydroisomerization of paraffinic feedstocks (as evidenced by Hoek/Bertaux and Carati).

Finally, with respect to the newly added limitation "wherein the zeolite does not contain any of the one or more transition group 8 metals," there is lack of enablement for such limitation in Applicant's specification (see discussion *supra* at paragraph 10).

32. With respect to claim 26, Wittenbrink discloses wherein the paraffin may have a needle penetration value of less than 10 mm (see Wittenbrink, Table 2).

33. With respect to claims 27 and 28, Wittenbrink discloses wherein the paraffin is free of aromatics, heterocyclic compounds, and naphthenes (see Wittenbrink, entire disclosure; and page 6, second paragraph).

34. With respect to claim 29, Wittenbrink discloses wherein the paraffin is created via a process for hydroisomerization (see Wittenbrink, pages 6-10).

35. With respect to claim 31, Wittenbrink discloses a process for preparing a microcrystalline paraffin by catalytic hydroisomerization comprising the steps of: (a) use of FT paraffins as starting material, having greater than 20 carbon atoms (see Wittenbrink, page 5, paragraph 1); (b) use of a zeolite catalyst (see Wittenbrink, page 8, second paragraph) (see discussion *supra* at paragraph 31); (c) use of a process temperature above 200°C (see Wittenbrink, page 7, second paragraph); and (d) action of pressure in the presence of hydrogen (see Wittenbrink, page 7, second paragraph).

With respect to the newly added limitation "wherein the zeolite does not contain any of the one or more transition group 8 metals," there is lack of enablement for such limitation in Applicant's specification (see discussion *supra* at paragraph 10).

36. With respect to claims 32 and 41, Wittenbrink discloses the use of any zeolite catalyst support (see Wittenbrink, page 8, second paragraph).

37. With respect to claims 31, 36, and 37, Wittenbrink discloses wherein the process may be carried out at temperatures in the range of 230°C to 270°C and pressures in the range of 3 MPa to 8 MPa (see Wittenbrink, page 7, second paragraph).



38. With respect to claims 38 and 39, Wittenbrink discloses wherein the feed ratio of hydrogen to FT paraffin may be in the range of 250:1 to 600:1  $\text{m}^3/\text{m}^3$  (see Wittenbrink, page 8, table).

39. With respect to claims 40 and 51, Wittenbrink is not specifically limited with respect to the amount of catalyst to be used (see Wittenbrink, entire disclosure).

40. With respect to claims 43, 44, and 52, Wittenbrink discloses wherein the catalyst may be platinum with a metals content of between 0.5 wt% and 20 wt% (see Wittenbrink, page 8, second paragraph).

41. With respect to claims 45, 46, and 53, Wittenbrink discloses wherein the FT paraffin used has carbon atoms of 20 or greater and wherein short-chain constituents may be removed prior to the step of hydroisomerization (see Wittenbrink, page 6, second and third paragraphs).

42. With respect to claim 54, Wittenbrink discloses wherein the microcrystalline paraffins are prepared in a single step (see Wittenbrink, page 7, second and third paragraphs) and wherein the product may be fractionated to obtain a wax fraction having a desired melting point and needle penetration value (see Wittenbrink, page 8, first paragraph).

### ***Response to Arguments***

43. Applicant's arguments filed 1 April 2010 have been fully considered but they are not persuasive.

44. Examiner understands Applicant's arguments to be:

- I. Hoek is silent as to aluminum oxide and is silent as to the zeolite not containing one or more transition group 8 metals. Thus, Hoek cannot anticipate the claimed process or claimed product.
- II. Eilers discloses a group 8 catalyst with an alumina carrier, but nowhere teaches or suggests a catalyst composition including a group 8 metal, on alumina, combined with a zeolite, wherein the zeolite contains no group 8 metal.
- III. Bertaux fails to teach or suggest any process employing a transition group 8 metal on aluminum oxide in a composition with a zeolite not containing a transition group 8 metal.
- IV. It has unexpectedly been found that a bifunctional catalyst with separate hydrogenation/dehydrogenation sites and the acid (zeolitic) sites can be employed in a process to provide a paraffin with a higher content of single and multibranched isoparaffins.
- V. Wittenbrink does not teach or suggest a composition of transition group 8 metals attached to gamma-aluminum oxide, wherein the zeolite does not contain any of the one or more transition group 8 metals.
- VI. Carati does not teach or suggest a composition of transition group 8 metals attached to gamma-aluminum oxide, wherein the zeolite does not contain any of the one or more transition group 8 metals.
- VII. The Bauer declaration confirms that the claimed process is novel and nonobvious and produces a novel and nonobvious product.

45. With respect to Applicant's first, second, third, fifth, and sixth arguments, the claim limitation at issue – "wherein the zeolite does not contain any of the one or more transition group 8 metals" – is not enabled by Applicant's specification as originally filed (see discussion *supra* at paragraph 10).

46. With respect to Applicant's fourth and seventh arguments, the Bauer declaration is not evidence that supports a finding of "unexpected" results. In order for a showing of "unexpected results" to be probative evidence of nonobviousness, it falls upon Applicant to at least establish: (1) that there actually is a difference between the results obtained through the claimed invention and those of the prior art; and (2) that the difference actually obtained would not have been expected by one skilled in the art at the time of the invention. *In re Freeman*, 474 F.2d 1318, 1324 (CCPA 1973). "Objective evidence of nonobviousness must be commensurate in scope with the claims." *In re Linder*, 457 F.2d 506, 508 (CCPA 1972). Furthermore, an applicant relying on comparative tests to rebut a finding of obviousness must compare the claimed invention to the closest prior art. *In re DeBlawe*, 736 F.2d 699, 705 (Fed. Cir. 1984).

In the present case, the Bauer declaration does not confirm that the "inventive catalyst" is commensurate in scope with the claims, namely the mass percentages of beta zeolite constituent relative to that of the gamma-aluminum oxide constituent. However, even assuming *arguendo* that the "inventive catalyst" described in the Bauer declaration is in fact commensurate in scope with the claims, the evidence cited therein does not compare results of the "inventive catalyst" composition relative to the catalyst described by "the closest prior art" as is required for a proper showing of "unexpected" results. In this regard, Examiner notes that the "prior art" catalyst used as the basis for comparison against that of Applicant's claims is referred to as "Co-Mo/Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub>" (see Bauer declaration, Fig. 3 and Fig. 4) – i.e. a catalyst composition not having any *zeolitic* component. However, Bertaux (which provides a preferred catalyst for the process of

Hoek) explicitly discloses zeolite beta as suitable for the hydroisomerization reaction (see Bertaux, column 4, lines 27-36). Likewise, Wittenbrink (used as the basis for the second grounds of rejection) discloses the use of zeolites for the hydroisomerization of paraffinic feedstocks (see Wittenbrink, page 8). Specifically, Wittenbrink provides that "[t]he support for the metals can be any refractory oxide or zeolite or mixtures thereof" (see Wittenbrink, page 8) (emphases added). Thus, Wittenbrink does in fact contemplate use of a *mixed zeolite/oxide* catalyst the same as specified in Applicant's claims.

### ***Conclusion***

47. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office Action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

48. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Randy Boyer whose telephone number is (571) 272-7113. The examiner can normally be reached Monday through Friday from 10:00 A.M. to 7:00 P.M. (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola, can be reached at (571) 272-1444. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Randy Boyer/

Examiner, Art Unit 1797